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Serial No. 10/666,712  
Docket No.: 60,130-1890

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of: Gady

Serial No.: 10/666,712

Filed: 9/18/2003

Group Art Unit: 3611

Examiner: Depumpo, Daniel G.

For: AUTOMATIC AXLE TRACTION CONTROL

Mail Stop Appeal Brief-Patents  
Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**REPLY BRIEF**

Dear Sir:

Responsive to the Examiner's Answer dated October 20, 2005, please consider the following remarks. The appeal brief fee has already been paid. Any additional fees or credits may be charged or applied to Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds.

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### REMARKS

In response to the Examiner's Answer, appellant submits the following remarks.

**A. Anticipation Rejection Over Yasuda**

**Claim 15**

The examiner argues that Yasuda discloses a controller that compares rotational speeds of the first and second axle output shafts to each other, citing col. 2, lines 59-63. This section of Yasuda states that the "clutch 31 is operated by an actuator 14 which is controlled by a drive power controller 1 which comprises a microcomputer or the like so as continuously change the apportionment of the transmitted torque between the front wheels FL and FR and the rear wheels RL and RR from 0:100 to 50:50." There is no disclosure in Yasuda of the controller comparing rotational speeds of first and second axle output shafts to each other as claimed.

The examiner argues that Yasuda discloses a controller that generates a control signal to bring the rotational speeds of the first and second axle output shafts within a common rotational speed range if rotational speeds of the first and second axle output shafts differ from each other by a predetermined amount, citing col. 2, lines 60-63 and col. 4, lines 20-23. The first section of Yasuda is set forth above. In this section of Yasuda, there is no mention of the generation of a control signal to bring rotational speeds of the two output shafts within a common rotational speed range. This section of Yasuda merely states that there is a computer that continuously apportions torque between the front and rear wheels.

The second section of Yasuda referred to by the examiner (col. 4, lines 20-23) states, "If FTCS=0, in other words the traction control system is not operating, then the flow of control

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proceeds to a step S6, in which it is decided whether or not the slippage ratio S which was calculated in the step S2 is greater than a threshold value STH." The slippage ratio S is calculated based on wheels speeds. See col. 3, lines 60-65. Again, there is no mention of a comparison of rotational speeds of first and second axle output shafts to each other. Further, there is no mention of generating a control signal if the rotation speeds of the two shafts are different from each other by a predetermined amount.

The examiner argues that Yasuda discloses a controller that activates a clutch mechanism to couple the first and second axle output shafts together during a wheel slippage condition when rotational speeds of the first and second axle output shafts are within the common rotational speed range, citing col. 3, lines 49-52. This section of Yasuda states, "when the rear wheels RR and RL skid, the drive power controller 1 first operates the traction control system, and thereafter operates the torque splitting control system, and thereby the rear wheels RR and RL are prevented from skidding." Again, there appears to be no mention in this section of coupling two output shafts to each other if the shafts are within a common rotational speed range.

Yasuda simply makes no mention of any type of coupling conditions that need to be satisfied before a coupling between two shafts can occur. Based the examiner's interpretation of Yasuda, one shaft could be rotating at a low speed and the other shaft could be rotating at a high speed and the clutch would couple the two shafts together. Such a coupling could cause severe damage to an associated powertrain system. Appellant's system makes sure that the two shafts are within a common rotational speed range before the shafts can be coupled together even during a wheel slippage condition. This prevents damage to the powertrain system.

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Appellant respectfully asserts that Yasuda does not anticipate claims 15 and 26 because Yasuda does not disclose all of the claimed features set forth in claims 15 and 26.

**Claim 16**

Claim 16 includes the feature of the controller automatically activating the clutch mechanism during a wheel slippage condition *only* if rotational speeds of the first and second output shafts are within a common rotational speed range. The examiner argues that this feature is shown at col. 3, lines 49-52 of Yasuda. This section of Yasuda states, “when the rear wheels RR and RL skid, the drive power controller 1 first operates the traction control system, and thereafter operates the torque splitting control system, and thereby the rear wheels RR and RL are prevented from skidding.” There is no mention in this section of a controller that activates a clutch during a wheel slippage condition only if rotational speeds of the shafts are within a common range. Instead, this section of Yasuda appears to teach activation of the clutch mechanism regardless of what the shaft speeds are. Thus, appellant respectfully asserts that Yasuda does not anticipate claim 16.

**Claims 17-19 and 27-29**

Claim 17 requires the controller to control at least one of a power source output torque or a wheel braking force to bring rotational speeds of the first and second output shafts within the common rotational speed range during the wheel slippage condition. The examiner argues that the Yasuda systems does both of these features, citing col. 1, lines 14-20. This section of Yasuda states: “As a traction control system for a vehicle which prevents deterioration of acceleration performance when a wheel skids during acceleration of the vehicle or the like, Tokkai Hei 2-63934 published by

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the Japanese Patent Office in 1990 discloses the concept of reducing the output power of the engine along with operating the brake when skidding of a vehicle driving wheel is detected."

The system referred to at this section is a prior art system to that discussed in Yasuda and is not the Yasuda system itself. Further, this section of Yasuda referred to by the examiner does not mention controlling power source torque or wheel braking to bring two transfer case output shafts into a common speed range during wheel slippage such that the shafts can be coupled together as defined in the claims. As discussed above, the benefit of this claimed feature is that coupling can occur without damaging the powertrain. Thus, Yasuda does not anticipate claim 17. For similar reasons, Yasuda also does not anticipate claims 18-19 and 27-29.

#### **Claims 20 and 30**

Claim 20 includes the feature that the controller simultaneously controls both the power source output torque and the wheel braking force to bring rotational speeds of the first and second axle output shafts within the common rotational speed range prior to activating the clutch mechanism during the wheel slippage condition. The examiner argues that this feature is disclosed at col. 1, lines 14-20 of Yasuda. For the reasons set forth above with regard to claims 17-19 and 27-29, Yasuda also does not anticipate claims 20 and 30.

#### **Claims 21 and 31**

Claim 21 includes the feature wherein the controller disengages the second axle output shaft from the first axle output shaft when there is no wheel slippage. The examiner argues that this is disclosed at col. 3, lines 7-10. This section states that "if the rear wheels RR and RL are skidding, the drive power controller 1 continuously changes the apportionment of the transmitted

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torque between the front wheels FL and FR and the rear wheels RL and RR from 0:100 to 50:50." This section only refers to what happens when there is skidding, there is no mention of what happens when there is no wheel slippage. This section does not disclose that the first and second axle output shafts are disengaged when there is no wheel slippage. Thus, appellant respectfully asserts that Yasuda does not anticipate claims 21 and 31.

### **Claim 23**

Claim 23 includes the feature wherein the clutch mechanism selectively couples the second axle output shaft for rotation with the first axle output shaft such that the input shaft drives both the first and second axle output shafts via the gear assembly. For the reasons set forth above with regard to claim 15, appellant respectfully asserts that Yasuda does not anticipate claim 23.

### **Claims 34 and 35**

The examiner argues that the features of claims 34 and 35 are shown at col. 3, lines 49-52 of Yasuda. This section of Yasuda states, "when the rear wheels RR and RL skid, the drive power controller 1 first operates the traction control system, and thereafter operates the torque splitting control system, and thereby the rear wheels RR and RL are prevented from skidding." There is no mention in this section of the second axle output shaft only being coupled to the first axle output shaft during a wheel slippage condition. Instead, this section of Yasuda appears to activate the clutch mechanism regardless of what the shaft speeds are. Thus, appellant respectfully asserts that Yasuda does not anticipate claims 34 and 35.

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**B. Obviousness Rejection Over Yasuda**

Claim 24 stands rejected to under 35 U.S.C. 103(a) as being unpatentable over Yasuda alone. Claim 24 recites that the gear assembly includes at least a first gear directly coupled to the input shaft, a second gear directly coupled to the first axle output shaft, and a third gear in meshing engagement with the first and second gears to transfer driving input from the input shaft to the first axle output shaft.

The examiner argues it would be obvious to modify Yasuda to include the transfer case of Leitner due to its commercial availability and known suitability for this purpose. Appellant respectfully disagrees. There is nothing in Yasuda that would have led one of ordinary skill in the art to believe that Yasuda's current configuration was in any way deficient for Yasuda's purposes or was in need of modification. Further, there is nothing to suggest that the current Yasuda configuration is not equally, or more, commercially available than the transfer case of Leitner. One of ordinary skill in the art would have found no reason, suggestion, or incentive for attempting to combine these references so as to arrive at the subject matter of claim 24 other than through the luxury of hindsight accorded one who first viewed appellant's disclosure.

**C. 35 U.S.C. 112, First Paragraph, Rejection**

Claims 34 and 35 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Specifically, the examiner argues that the recitation that the second output shaft is only coupled to the power source during a wheel slippage condition is not supported by the original specification. Appellant disagrees.

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As set forth at paragraphs [19] and [23] of the subject application, in order for the ECU 32 to initiate engagement of the front drive axle 12, the front axle output shaft 54 and the rear axle output shaft 52 must both be within a predetermined speed range. If both shafts 52, 54 are within the predetermined speed range the ECU 32 generates a signal and declutch 62 couples both shafts 52, 54 together. If both shafts 52, 54 are not within the predetermined range, the ECU 32 initiates various control signals to provide a controlled shift by bringing both shafts 52, 54 within the predetermined range. Further, as set forth at paragraph [21], if the shafts are not within the predetermined range, the controller prevents engagement until the shafts are within the predetermined range.

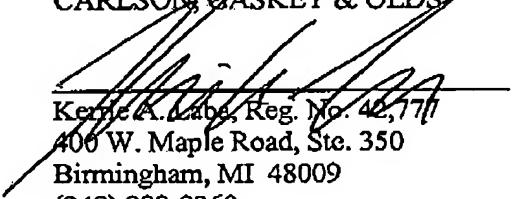
Thus, Appellant asserts that claims 34 and 35 are fully supported by the specification and respectfully requests that the 35 U.S.C. 112, first paragraph, rejection be reversed.

#### CONCLUSION

For the reasons set forth above and in the Appeal Brief, the rejection of all claims is improper and should be reversed.

Respectfully submitted,

CARLSON, GASKEY & OLDS

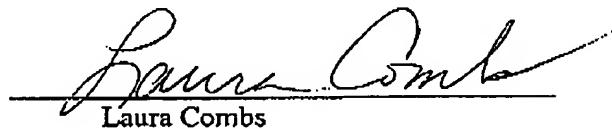
  
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CERTIFICATE OF TRANSMISSION UNDER 37 CFR 1.8

I hereby certify that this correspondence is being facsimile transmitted to the United States patent and Trademark Office, fax number (571) 273-8300, on December 20, 2005.

  
Laura Combs